



# National Transportation Safety Board Aviation Accident Final Report

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<b>Location:</b>	VERNAL, UT	<b>Accident Number:</b>	DEN88LA046
<b>Date &amp; Time:</b>	01/02/1988, 1530 MST	<b>Registration:</b>	N400AH
<b>Aircraft:</b>	HILLER UH-12E	<b>Aircraft Damage:</b>	Substantial
<b>Defining Event:</b>		<b>Injuries:</b>	3 None
<b>Flight Conducted Under:</b>	Part 91: General Aviation - Business		

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## Analysis

THE COMMERCIAL PLT AND TWO PASSENGERS WERE SURVEYING A ROAD ROUTE IN MOUNTAINOUS TERRAIN. AT CRUISE, THE PILOT NOTICED A DROP IN MANIFOLD PRESSURE, FOLLOWED BY A LOSS OF OIL PRESSURE. THE PLT REPORTED THAT THE ENGINE QUIT. AN AUTOROTATION TO A SNOW COVERED ROAD RESULTED IN A HARD LANDING. THE MAIN ROTOR BLADES SEVERED THE TAIL BOOM AND THE LANDING SKIDS COLLAPSED. A POST ACCIDENT ENGINE TEAR DOWN REVEALED EVIDENCE CONSISTENT WITH CONNECTING ROD FAILURE. THE NUMBER FIVE ROD BEARING HAD DISINTEGRATED AND THE ROD END CAP HAD BROKEN IN SERVICE. THE DAMAGED ROD END CAP AND CONNECTING ROD WERE EXAMINED FOR FAILURE MODE DETERMINATION. THE METALLURGIST'S FACTUAL REPORT STATES THAT THE ROD SHOWS FRACTURE DETAILS CHARACTERISTICS OF HIGH CYCLE FATIGUE.

## Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be:

## Findings

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Occurrence #1: LOSS OF ENGINE POWER(TOTAL) - MECH FAILURE/MALF  
Phase of Operation: CRUISE - NORMAL

### Findings

1. (C) ENGINE ASSEMBLY,CONNECTING ROD - FATIGUE
2. (C) MAINTENANCE,REBUILD/REMANUFACTURE - POOR - OTHER MAINTENANCE PERSONNEL
3. (C) ENGINE ASSEMBLY,CONNECTING ROD BOLT - STRIPPED THREAD
4. (C) ENGINE ASSEMBLY,CONNECTING ROD CAP - FAILURE,TOTAL

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Occurrence #2: FORCED LANDING  
Phase of Operation: DESCENT - EMERGENCY

### Findings

5. AUTOROTATION - INITIATED

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Occurrence #3: HARD LANDING  
Phase of Operation: LANDING - FLARE/TOUCHDOWN

### Findings

6. (C) ALTITUDE - MISJUDGED - PILOT IN COMMAND
7. (C) FLARE - IMPROPER - PILOT IN COMMAND
8. MISC ROTORCRAFT,TAIL BOOM - SHEARED

## Factual Information

### Pilot Information

<b>Certificate:</b>	Commercial	<b>Age:</b>	35, Male
<b>Airplane Rating(s):</b>	Single-engine Land	<b>Seat Occupied:</b>	Center
<b>Other Aircraft Rating(s):</b>	Helicopter	<b>Restraint Used:</b>	Seatbelt, Shoulder harness
<b>Instrument Rating(s):</b>	None	<b>Second Pilot Present:</b>	No
<b>Instructor Rating(s):</b>	None	<b>Toxicology Performed:</b>	No
<b>Medical Certification:</b>	Class 2 Valid Medical--no waivers/lim.	<b>Last FAA Medical Exam:</b>	06/08/1987
<b>Occupational Pilot:</b>		<b>Last Flight Review or Equivalent:</b>	
<b>Flight Time:</b>	5450 hours (Total, all aircraft), 5100 hours (Total, this make and model), 5100 hours (Pilot In Command, all aircraft), 30 hours (Last 30 days, all aircraft), 1 hours (Last 24 hours, all aircraft)		

### Aircraft and Owner/Operator Information

<b>Aircraft Make:</b>	HILLER	<b>Registration:</b>	N400AH
<b>Model/Series:</b>	UH-12E UH-12E	<b>Aircraft Category:</b>	Helicopter
<b>Year of Manufacture:</b>		<b>Amateur Built:</b>	No
<b>Airworthiness Certificate:</b>	Normal	<b>Serial Number:</b>	1177
<b>Landing Gear Type:</b>	Retractable - Tricycle	<b>Seats:</b>	4
<b>Date/Type of Last Inspection:</b>	08/29/1987, Annual	<b>Certified Max Gross Wt.:</b>	2750 lbs
<b>Time Since Last Inspection:</b>	9 Hours	<b>Engines:</b>	1 Reciprocating
<b>Airframe Total Time:</b>	6732 Hours	<b>Engine Manufacturer:</b>	LYCOMING
<b>ELT:</b>	Installed, activated, aided in locating accident	<b>Engine Model/Series:</b>	TIVO-540-A2A
<b>Registered Owner:</b>	BEN J. RICHARDS	<b>Rated Power:</b>	315 hp
<b>Operator:</b>	BEN J. RICHARDS	<b>Operating Certificate(s) Held:</b>	On-demand Air Taxi (135)
<b>Operator Does Business As:</b>	DYNAMIC AVIATION	<b>Operator Designator Code:</b>	

## Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual Conditions	Condition of Light:	Day
Observation Facility, Elevation:	RKS, 0 ft msl	Distance from Accident Site:	0 Nautical Miles
Observation Time:	1648	Direction from Accident Site:	0°
Lowest Cloud Condition:	Clear / 0 ft agl	Visibility	50 Miles
Lowest Ceiling:	None / 0 ft agl	Visibility (RVR):	0 ft
Wind Speed/Gusts:	Calm /	Turbulence Type Forecast/Actual:	/
Wind Direction:	230°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:		Temperature/Dew Point:	-15°C
Precipitation and Obscuration:			
Departure Point:	VERNAL, UT (VEL)	Type of Flight Plan Filed:	None
Destination:		Type of Clearance:	None
Departure Time:	1400 MST	Type of Airspace:	Class G

## Wreckage and Impact Information

Crew Injuries:	1 None	Aircraft Damage:	Substantial
Passenger Injuries:	2 None	Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	3 None	Latitude, Longitude:	

## Administrative Information

Investigator In Charge (IIC):	ROBERT B COLLINS	Report Date:	03/30/1989
Additional Participating Persons:	RICHARD C STEDNITZ; SALT LAKE CITY, UT		
Publish Date:			
Investigation Docket:	NTSB accident and incident dockets serve as permanent archival information for the NTSB's investigations. Dockets released prior to June 1, 2009 are publicly available from the NTSB's Record Management Division at <a href="mailto:pubinquiry@ntsb.gov">pubinquiry@ntsb.gov</a> , or at 800-877-6799. Dockets released after this date are available at <a href="http://dms.nts.gov/pubdms/">http://dms.nts.gov/pubdms/</a> .		

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The Independent Safety Board Act, as codified at 49 U.S.C. Section 1154(b), precludes the admission into evidence or use of any part of an NTSB report related to an incident or accident in a civil action for damages resulting from a matter mentioned in the report. A factual report that may be admissible under 49 U.S.C. § 1154(b) is available [here](#).